

ABSTRACT

A pilotless catalytic combustor (10) including a basket (12) having a central axis (14) and a central core region (16) disposed along a portion of the central axis. Catalytic combustion modules (18) are circumferentially disposed about the central axis radially outward of the central core region for receiving a fuel flow (20) and a first portion of an oxidizer flow (22), and discharge a partially oxidized fuel/oxidizer mixture (24) at respective exit ends (26). A base plate (30) is positioned in the central core region upstream of the exit ends of the catalytic combustion modules, the baseplate defining a recirculation zone (32) near the respective exit ends for stabilizing oxidation in the burnout zone. A method of staged fueling for a pilotless catalytic combustor includes providing fuel to at least one of the modules during start up and progressively providing fuel to other modules as a load on the turbine engine is increased.